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ABSTRACT

Thomas Carroll's address, delivered during 1972 Earth Week celebrations, discusses the Environmental Protection Agency's (EPA) activities in environmental education. A review of the EPA role in environmental education is given, indicating the need for developing a conceptual framework to improve program planning by EPA and related federal agencies. Such analysis will make known which environmental education programs should receive priority as most likely to achieve pollution abatement goals. The concern for environmental protection, causing a concurrent increase in concern for environmental leadership, has led the Agency to sponsor a number of learning opportunities: formal education, informal learning, and manpower development and training. Activities in each of these areas are briefly summarized. Formal education taking place in the classroom emphasizes a problem solving approach to the environment and encourages an understanding of the tradeoffs involved in various pollution control activities. Informal learning, which encompasses civic action, attempts to motivate people to act in an environmentally concerned way. Manpower development and training consists of a broad array of programs to develop a highly skilled work force for implementing EPA's mission to abate and control pollution. (BL)

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STATEMENT
HONORABLE THOMAS E. CARROLL
ASSISTANT ADMINISTRATOR FOR PLANNING AND MANAGEMENT
ENVIRONMENTAL PROTECTION AGENCY
BEFORE THE
SELECT SUBCOMMITTEE ON EDUCATION
COMMITTEE ON EDUCATION AND LABOR
HOUSE OF REPRESENTATIVES
APRIL 17, 1972

I welcome the opportunity to appear before the
Committee at the beginning of Earth Week to discuss
the Environmental Protection Agency's activities in
environmental education.

As you are aware, the national concern for
environmental protection has caused a concurrent
increase in concern for environmental learning.
President Nixon has made a "national commitment" to
environmental enhancement and protection in two State
of the Union addresses and special messages on the
environment.

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In his introduction to the first annual report of the Council on Environmental Quality, the President used the term "environmental literacy" to describe the knowledge people need to participate constructively in meeting national environmental goals.

We are currently sponsoring a number of environmental learning activities which might be viewed in three broad categories:

1. formal education
2. informal learning
3. manpower development and training.

Although the Agency's primary mission is concerned with direct measures of controlling pollution by, for example, establishing standards, abating pollution and monitoring the environment, we know there is a positive relationship between the level of citizen knowledge and the level of environmental quality.

I plan to discuss our activities in these three areas in greater detail shortly, but first I would like to review some of our thoughts on the EPA role in environmental education.

The thing that is perhaps foremost in our mind is that there is a need to provide better coordination among the Federal agencies involved in environmental education. In FY 1972 the funding for these activities at the Federal level will exceed \$20 million, excluding manpower activities. The agencies involved include EPA, the Office of Education, the National Science Foundation, the Department of the Interior, and others.

These expenditures constitute a significant amount of resources which we believe could be used more effectively. One reason for the somewhat fragmentary nature of environmental education activities is the lack of a consistent framework of objectives. To provide a basis for EPA and other agencies to improve the planning for these programs, we are developing a conceptual framework which will array objectives and programs in a more rigorous manner. When this analysis is complete, it should be known which environmental education programs should receive priority as most likely to achieve pollution abatement goals.

It should be apparent that not all environmental education programs can be subjected to rigorous analysis.

For example, there is no direct measurable environmental payoff in learning an important concept such as the principles of general ecology. However, there seem to be many other specific concepts which if taught in a widespread manner, would result in measurable decreases in pollution.

An example of this is "Mission 5000"--the drive to close open dumps around the country and convert them to sanitary landfills. By presenting information to local government officials and interested citizens through courses, seminars and study materials, EPA has encouraged the closing of over 1,700 dumps since the inception of the program.

Using information programs such as this to enlist voluntary cooperation is an approach which we feel merits emphasis. Some evidence of public receptiveness to this type of approach was seen in a recent study by the Gallup organization. In their study, 85% of the persons surveyed expressed a willingness to take action to combat pollution problems. Nearly half (49%) would--in the words of the survey--"live more simply" to reduce pollution. It is our plan to design several education programs to give the public information on specific activities which can be

more readily changed or reduced to protect the environment.

Environmental planners and economists have generally recognized three broad pollution control techniques:

1. direct regulation through the enactment of bans and restrictions;
2. taxes levied on polluting activities; and
3. subsidies or grants to pollution sources for cleanup.

While these techniques are effective in many cases, there is a fourth tool which in the long run may be more effective in protecting the environment. That technique is providing information which stimulates voluntary cooperation.

Our work on the planning framework mentioned above, has been an outgrowth of a Task Force study on Environmental Education which was conducted last year. As a result of that study and other information, EPA is establishing an office reporting directly to me to plan the Agency's environmental education and manpower

development and to strengthen coordination of related activities. This office will have a three-fold purpose:

1. to plan and implement EPA's activities related to formal environmental education;
2. to coordinate our activities with NSF, OE, CEQ, and DOL on environmental education and manpower activities;
3. to coordinate intra-agency activities particularly in manpower development to encourage more multi-disciplinary training, stimulate more cross-fertilization of ideas between mission-oriented activities and establish a more rational method of determining priorities.

Turning now to the three areas I mentioned originally--formal education, informal learning, and manpower--I would like to briefly review some of our activities.

In the area of formal education--that learning which takes place in the classroom--we are planning to work with the Office of Education and others to inculcate an environmental ethic among students--one which emphasizes a problem-solving approach to the environment and which encourages

an understanding of the tradeoffs involved in various pollution control activities.

In curriculum development EPA provided a grant to the Tilton School in New Hampshire to assist in a curriculum guide and other teaching materials for water pollution control. The intent of the program was to bring illustrations and examples of pollution abatement into biology and general science courses in secondary schools. The materials have been most useful in increasing learning on water quality and in teaching the techniques of water sampling and testing.

In the area of informal learning--which encompasses civic action, the media and other means--EPA has supported a wide range of activities to motivate people to act in an environmentally concerned way. A program which has had a particularly welcome response is the President's Environmental Merit Awards program.

Briefly, the program provides recognition for students participating in work/study projects about the environment. Participants earn certificates of merit or awards of excellence as determined by a local committee of students, faculty and interested citizens.

Under the co-sponsorship of EPA and the Office of Education, over 2,500 schools have elected to participate. With an average enrollment of 800 students, and a participation rate of 50%, the number of students involved in projects could go as high as one million. Last month we announced an extension of the awards program to cover summer camping activities. Formerly limited to high schools, the program is now also open to camps, youth organizations, and others active in summer programs.

Another joint program, between EPA and the Department of Labor, is SPARE, or "Summer Program for Action to Renew the Environment." Since its inception, SPARE has provided a combination of jobs and pre-vocation environmental training for approximately 9,000 low-income youths aged 14 to 20. Typical of these projects was a recycling effort in St. Louis, in which participants collected glass which was made into "Glassphalt" and used by the city to pave a section of street.

In the third area of environmental learning, EPA has a number of manpower and training activities.

They consist of a broad array of programs to develop a highly skilled work force for implementing EPA's mission

to abate and control pollution. These programs fall into four categories:

1. manpower planning,
2. university grants and fellowships,
3. direct technical (short course) training, and
4. operator and technician training.

During FY 1971 EPA spent almost \$19 million for these programs--\$15 million of which was funded by EPA and \$3.9 million by the Department of Labor in cooperation with EPA under the Manpower Development and Training Act.

I would now like to briefly describe each of the four categories listed above, beginning with manpower planning.

Manpower Planning

The purpose of this activity is two-fold:

1. to forecast the demand for and supply of trained manpower needed to abate and control pollution; and
2. to design programs to insure that manpower is available in sufficient numbers with the requisite skills

and at the appropriate times and geographic locations.

EPA's internal manpower forecasting activities are supplemented by programs to assist the States in developing their own manpower planning capabilities:

1. through direct assistance to State agencies;
2. through mechanisms for coordinating Federal, State, and local agency assessment activities; and
3. by designing programs to help States meet their manpower needs.

Training Grants and Fellowships

EPA awards grants to public or private non-profit educational institutions to help them establish training programs to prepare individuals for full-time professional careers in the environmental protection field. Programs exist in the fields of air and water pollution control, radiation protection and solid waste management. Funds are provided to students in the form of traineeships and fellowships. Educational institutions also receive funds to defray costs of staff, equipment, curriculum development and facilities.

In FY 1971, EPA initiated or continued financial support to 185 institutionally-based training programs. A total of 1,805 students received support in the form of either a traineeship or a fellowship. About \$10.5 million has been spent on this activity.

EPA has proposed a \$7.4 million training grants and fellowship program for FY 1973. The decision to reduce the level of this program by \$3.0 million from the amount appropriated in FY 1972 was made as a result of a recent evaluation which revealed that:

1. At the present time there appears to be a rough equilibrium rather than a vast gap between the demand for trained environmentalists and the number of qualified applicants available for environmental jobs. As an example, the Office of Air Programs in late 1971 completed a survey of all 264 State and local air pollution control agencies. The results showed that only ten percent of their budgeted positions were unfilled, of which only two percent were vacant for lack of qualified candidates.

2. During the past decade the number of universities offering graduate training programs in the environment has increased significantly and more students are currently

entering this field than in the past. As the need for trained environmentalists continues to increase, in both private and public sectors, it is logical to assume that this demand will, in and of itself, encourage universities to develop or expand training programs to respond to these needs.

3. Most of EPA's grant programs have matured and thus need less support than in the initial years of the grants when substantial "seed money" was required to acquire new faculty, equipment and facilities.

As a result of these factors, EPA considers that a large EPA training grant program is less needed now than in the past, and consequently has decided to shift funds from this program to other higher priorities.

Direct Technical Training

The EPA Direct Technical Training Program is intended to serve key Federal, State, local and private personnel who hold responsibility for evaluation, prevention, abatement and control of pollution. Its purpose is three-fold:

1. to provide advanced technical training generally unavailable elsewhere;

2. to research and develop instructional technology on environment training; and

3. to provide support of the training programs of other Federal, State and local agencies.

Most direct training consists of short-term seminars, workshops, and courses of one-to-four weeks' duration. Conducted by EPA personnel, some examples of courses offered are: operation of sanitary landfills, application of pesticides, management of radiation accidents, fundamentals of air pollution control, and instructor training for waste treatment operators.

Beginning in FY 1973 EPA intends to assess tuition fees for all persons attending its direct training courses. These fees are being assessed pursuant to the User Charge Act (31 U.S.C. 483(a)) which in essence states that the government shall charge a fee for services rendered to individuals or groups which are not rendered to society as a whole. Fees for the program will be based upon the cost to EPA of preparing and presenting the courses.

The proposed increase of about \$16 million in State program grants in FY 73 was made in part in recognition

of the special financial problems of State and local governments in meeting the costs of tuition fees for direct training. Thus, the States will have adequate resources to send their employees to these courses if they choose to do so.

Of course, under their program grant authority, States have the flexibility to establish their own priorities. The extent to which they use program grant funds for EPA direct training courses will provide a good indication of the priority of these courses for State and local governments.

Technician and Operator Training

Technician and operator training refers to training of subprofessional, technical personnel who perform work of varying complexity under the supervision of a graduate scientist or engineer.

EPA has established a variety of technician training programs to meet increased requirements for paraprofessional personnel in the air, water, solid waste and radiation programs. In FY 1971, EPA awarded \$527,000 to 21 institutions, to approximately 500 people.

The major thrust of EPA's activity in paraprofessional training is in the Office of Water Programs, to train waste treatment operators. Between now and FY 1976 we estimate that about 4,500 new operators will be added to the work force each year.

To meet the needs for waste treatment operators, two major efforts are underway:

1. a series of EPA-Department of Labor cooperative efforts under the Manpower Development and Training Act (MDTA) to train disadvantaged and underemployed persons as entry level operators; and

2. an EPA-sponsored pilot program funded under section 5(g)(1) of the Water Quality Improvement Act to train instructors and advanced level operators and special State projects.

In FY 1971 over \$5 million was spent under these programs to train or upgrade about 5,000 persons.

I would like to thank the Committee for the opportunity of presenting our programs and if there are any questions, I shall be pleased to discuss them.